

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
FEATHER RIVER HATCHERY, 1989-90

by

Donald L. Schlicting
Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 93-4

1993

ANNUAL REPORT
FEATHER RIVER HATCHERY, 1989-90^{1/}

by

Donald L. Schlichting
Region 2, Inland Fisheries

ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1989 through June 30, 1990. Tables present water temperatures, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead rainbow trout, O. mykiss, entering the Hatchery, number of eggs taken and received, and numbers of fish released.

We trapped 12,656 chinook salmon and 1,446 steelhead and planted or transferred 14,464,785 chinook fingerlings, 659,640 steelhead fingerlings, and 478,065 steelhead yearlings.

^{1/} Inland Fisheries Administrative Report No. 93-4.
Submitted September 1992. Edited by K.A. Hashagen, California
Department of Fish and Game, 1416 Ninth Street, Sacramento,
CA 95814

INTRODUCTION

This report describes activities at the Feather River Hatchery and its annex during its 23rd year of operation July 1, 1989 through June 30, 1990. The Hatchery is located near the upper Thermalito Bridge in Oroville, Butte County. It was constructed by the California Department of Water Resources as part of the California Water Project to compensate for the loss of spawning area above the Oroville Dam. It is operated by the Department of Fish and Game with funds provided by the Department of Water Resources. The Hatchery annex is located along Highway 99, 1 mile south of Oro Dam Boulevard West. Operating expenses for the annex are shared by the Department of Fish and Game (5/6) and Department of Water Resources (1/6).

PRODUCTION SUMMARY

Personnel from Feather River Hatchery trapped 12,656 chinook salmon, Oncorhynchus tshawytscha, and 1,446 steelhead, O. mykiss, during the 1989-90 season (Table 1). Approximately 25,346,385 salmon eggs and 1,426,143 steelhead eggs were taken. We planted 14,466,785 salmon and 1,133,705 steelhead.

MARKING PROGRAMS

Bay Delta personnel marked a total of 755,638 1989 brood year (BY) fall-run chinook salmon with an adipose (AD) and coded-wire nose tag (CWT). These marked chinook salmon were planted at Koket, Miller Park, Steamboat Slough, San Joaquin, Upper Old River, Sutter Slough, and Jersey Point (Table 2).

TABLE 1. Feather River Hatchery Production Summary, 1989-1990.

Species brood year	Fish trapped or received	Females spawned	Eggs taken	Fish Planted		Estimated Number on hand 6/30/90
				fingerlings	yearlings	
Chinook salmon Spring run 1988 BY				1,423,600		0
Chinook salmon Spring run 1989 BY	5,078	1,520	8,866,790	2,322,564 ^{a/}		3,655,533
Chinook salmon Fall run 1988 BY				1,987,300		
Chinook salmon Fall run 1989 BY	7,578	2,745	16,479,595 ^{c/}	8,731,321 ^{b/}		4,926,895
Steelhead 1989 BY				161,200	478,065	0
Steelhead 1990 BY	1,193	292	1,426,143	498,440		531,120

a/ Includes 966,500 fish shipped to Mokelumne Hatchery

b/ Includes 1,126,200 fish shipped to Mokelumne

c/ Includes 308,250 fall run eggs shipped to Mokelumne Hatchery

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery, 1989-90.

Race	Month of release	Average size (G)	Number released	Mark	Release site
Spring-run 1988 BY	July	17.0	209,200		Benicia
	August	20.3	1,214,400		Benicia
	TOTAL		1,423,600		
Spring-run 1988 BY	January	0.3	178,500		Feather River
	January	0.7	150,384		Chico Creek
	January	1.1	966,500		Mokelumne Hatchery
	April	3.4	719,000		Feather River
	June	3.4	11,380		Sacramento River
	June	10.6	185,000		Maritime Academy
	June	10.4	111,800		Mare Island
TOTAL			2,322,564		
Fall-run 1988 BY	July	31.7	911,400		Benicia
	August	19.4	1,075,900		Benicia
	TOTAL			1,987,300	
Fall-run 1989 BY	January	1.4	929,400		Mokelumne Hatchery
	February	1.35	196,800		Mokelumne Hatchery
	March	3.5	1,508,250		Feather River - Gridley
	April	5.0	935,195		Feather River - Gridley
	April	5.0	54,179	H6-01-14-01-08	Dos Rios
	April	5.0	53,367	H6-01-14-01-07	Dos Rios
	April	5.0	53,641	H6-01-14-01-06	Upper Old River
	April	5.0	54,545	H6-01-14-01-05	Upper Old River
	April	5.0	53,617	H6-01-14-01-09	Jersey Point
	May	7.0	108,795	H6-01-14-01-10	
				H6-01-14-01-11	Dos Rios
	May	9.0	108,340	H6-01-14-01-12	
				H6-01-14-01-13	Upper Old River
	May	9.0	54,061	H6-31-19	Jersey Point
	May	9.0	54,398	06-31-18	Miller Park
	May	9.0	53,995	06-31-20	Sacramento River
					Koket
	May	9.0	10,200		Sacramento River
					Hamilton City
	May	9.0	53,900	06-31-23	Sacramento River
				Sutter-Slough	
May	9.0	52,800	06-31-21	Sacramento River	
				Steamboat Slough	
May	9.0	52,988	06-31-22	Sacramento River	
				Koket Resort	
May	9.0	882,000		Maritime Academy	
June	10.7	4,800	Vibrio Inoculated	Tiburon	
June	10.7	3,414,050		Mare Island	
				Maritime Academy	
TOTAL			8,731,321		

1989 BY Spring-Run

The fish ladder was opened on September 7, 1989 to allow the spring-run chinook salmon to enter the Hatchery. We received 5,078 fish between September 7 and October 1 (Appendix Table 1). The spring-run were sexed on October 3. At the time, we had on hand 2,207 males, 2,178 females and 69 grilse. Of the 2,178 females, we successfully spawned 1,520 from October 4 through October 20. The spawning yielded 8,866,790 eggs, for an average of 5,833 eggs per female.

An estimated 6,713,009 fingerlings were transferred to the ponds, for an average egg to fingerling survival rate of 75.7%.

Between January 1989 and June 1990, we planted 2,322,564 1989 BY chinook fingerlings and smolts. A total of 3,655,533 remained on hand June 30.

1989 BY Fall-Run

The first fall-run chinook salmon adults entered the Hatchery on October 2, (Appendix Table 1). The season total was 7,578 fish. We spawned 2,745 females between October 2 and November 11 and took 16,479,595 eggs, for an average of 6,003 eggs per female. Fry production totaled 14,580,064, for an average egg to fry survival of 88%. We planted and transferred a total of 8,731,321 fall-run 1989 BY chinook fingerlings. An estimated 4,926,895 remained on hand as of June 30.

Recovery of Marked Chinook Salmon

All chinook salmon entering the Hatchery were examined for marks; a total of 840 was marked (Appendix Table 2).

Chinook Salmon Planting

We planted an estimated 14,464,785 chinook fingerlings (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

History of the 1989-90 Production

Steelhead were not counted until January 3. We trapped a total of 1,193 males and females. Marks and measurements of steelhead were recorded by Region 2 personnel. Of the total run of 1,193 fish, there were 747 males and 446 females. We successfully spawned 292 females (Table 3) and took a total of 1,426,143 eggs (4,884 eggs/female). From these eggs 1,350,101 fish were transferred to the ponds for an overall survival rate of 94.6%. We planted 498,440 fingerlings and had an estimated 531,120 on hand June 30.

STEELHEAD PLANTING

We planted an estimated 1,137,705 steelhead during the 1989-90 season (Table 4).

VISITOR USE

During the 1989-90 fiscal year, an estimated 26,638 people visited the installation.

TABLE 3. Steelhead Spawning Data, 1989-90

Date	Fish spawned	
	M	F
1/3/90	26	40
1/9/90	15	55
1/18/90	25	82
1/25/90	8	42
2/1/90	12	34
2/8/90	10	20
2/15/90	2	9
2/21/90	2	6
3/1/90	5	4
Total	105	292

TABLE 4. Steelhead Planting Summary, 1989-1990

Date	Strain	Release site	Average size(G)	Number released
July 1989	Feather River	Feather River	4.4	161,200
Feb. 1990	Feather River	Feather River	149.3	273,790
March 1990	Feather River	Feather River	112.0	204,275
April 1990	Feather River	Chico Creek	0.2	132,500
April 1990	Feather River	Dry Creek	0.2	132,500
June 1990	Feather River	Feather River	2.2	233,440
TOTAL				1,137,705

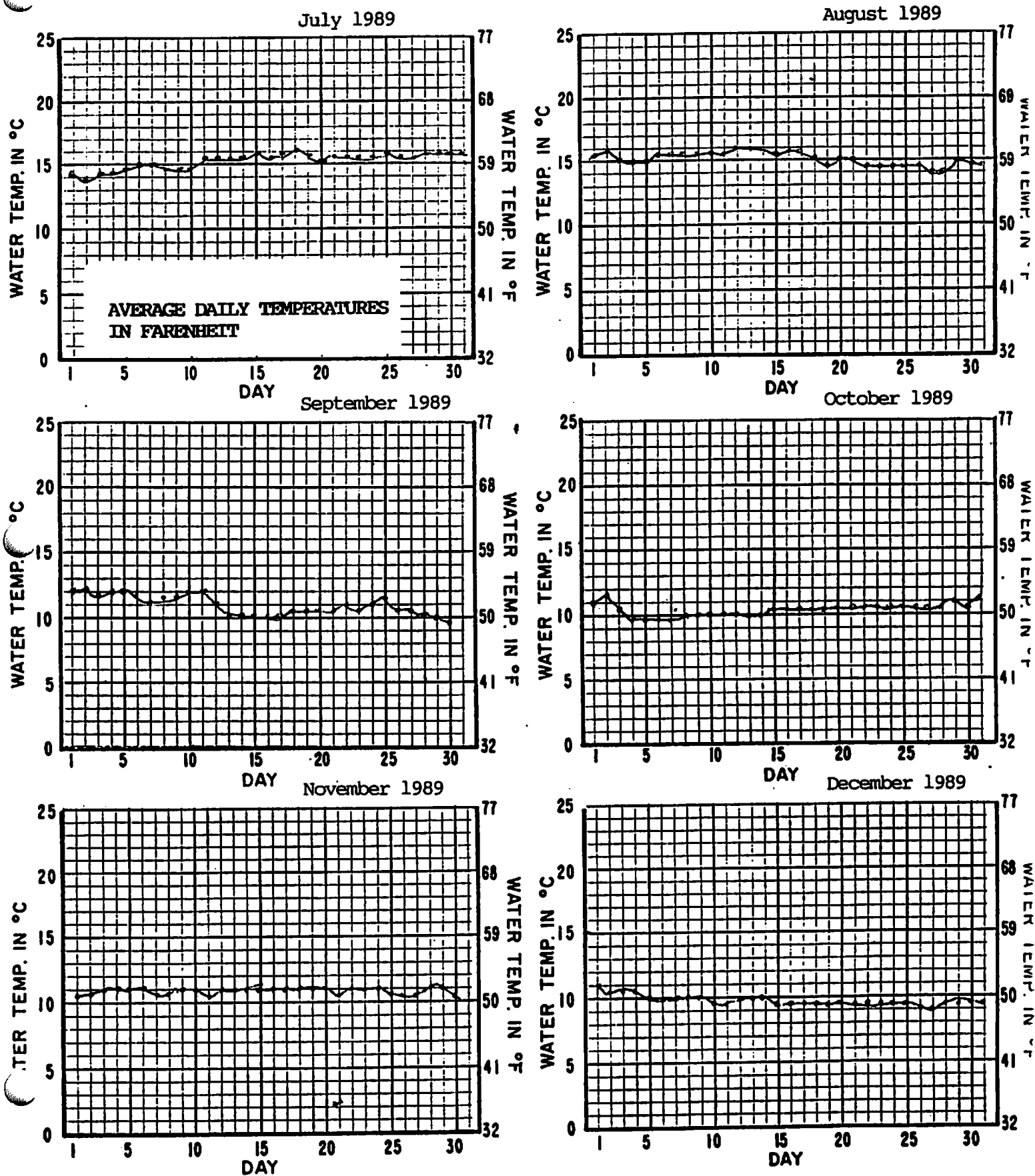
APPENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data, Feather River Hatchery, 1989-1990

Week	<u>Chinook salmon</u> <u>fall run</u>		<u>Chinook salmon</u> <u>spring run</u>		<u>Steelhead trout</u>	
	Adults	Grilse	Adults	Grilse	Males	Females
Sept. 7-						
Oct. 1			4,385	693		
Oct. 2-10	2,453	522				
Oct. 11-17	1,352	168				
Oct. 18-24	1,507	319				
Oct. 25-						
Nov. 2	941	92				
Nov. 3-28	224	0				
Jan. 3-9					666	335
Jan. 10-18					61	73
Jan. 19-25					11	23
Jan. 2-						
Feb. 1					0	4
Feb. 2-8					7	6
Feb. 9-15					2	5
Season Totals	6,477	1,101	4,385	693	747	446

APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Adipose Marked Chinook Salmon Trapped at Feather River Hatchery, 1989-1990

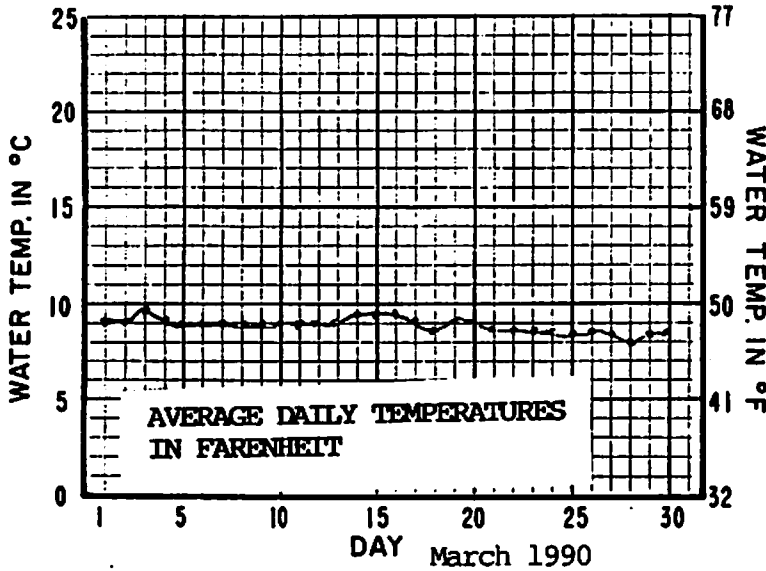
FL	Males	Females	FL	Males	Females
50	9		81	8	11
51	2		82	12	20
52	4		83	15	21
53	11		84	19	12
54	4		85	8	19
55	11		86	14	15
56	15		87	17	13
57	16	1	88	14	18
58	14		89	15	11
59	8	1	90	27	12
60	11	1	91	13	5
61	9		92	15	2
62	10		93	7	2
63	6	1	94	10	5
64	5	1	95	9	
65	5	2	96	10	1
66	3	1	97	6	
67	2	3	98	5	1
68	2	4	99	6	3
69	4	3	100	12	1
70	2	8	101	4	
71		3	102	3	
72	2	16	103	6	
73	2	11	104	3	
74	4	25	105	3	
75	5	11	106	1	
76	6	17	107	1	
77	1	22	108		
78	13	22	109	1	
79	7	17	110	1	
80	9	38			
			TOTALS	467	380

DAILY WATER TEMPERATURES BY MONTH

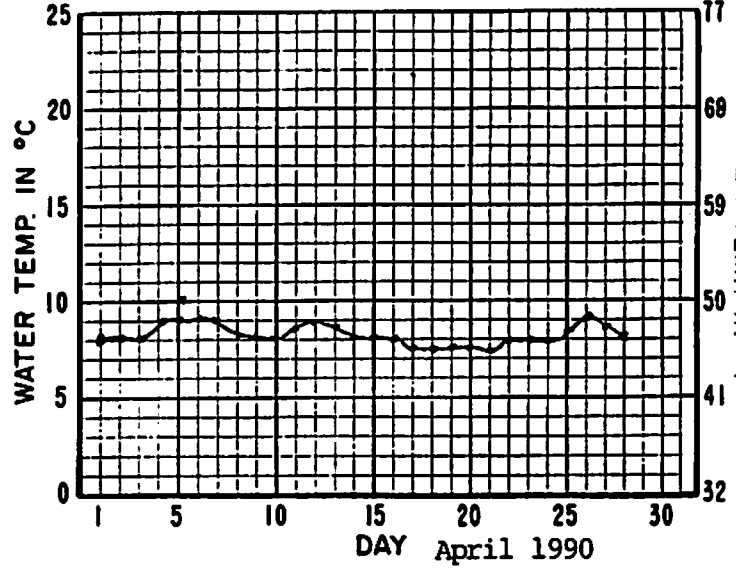


DAILY WATER TEMPERATURES BY MONTH

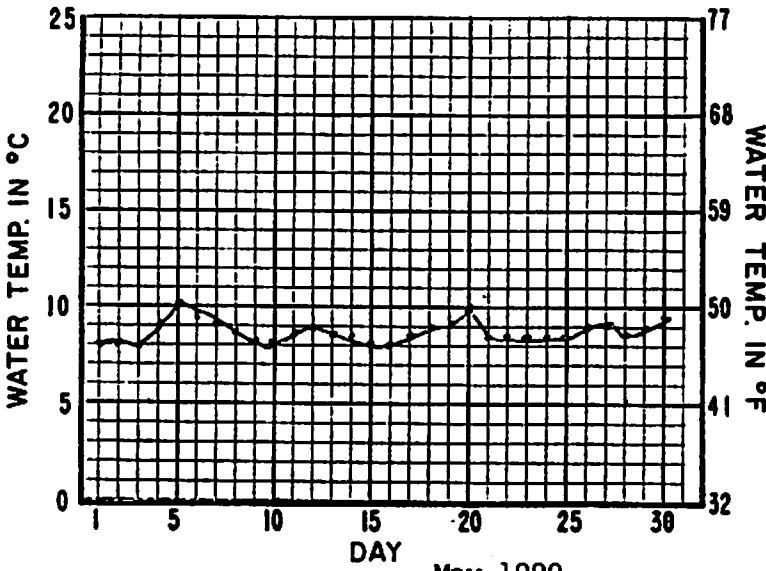
January 1990



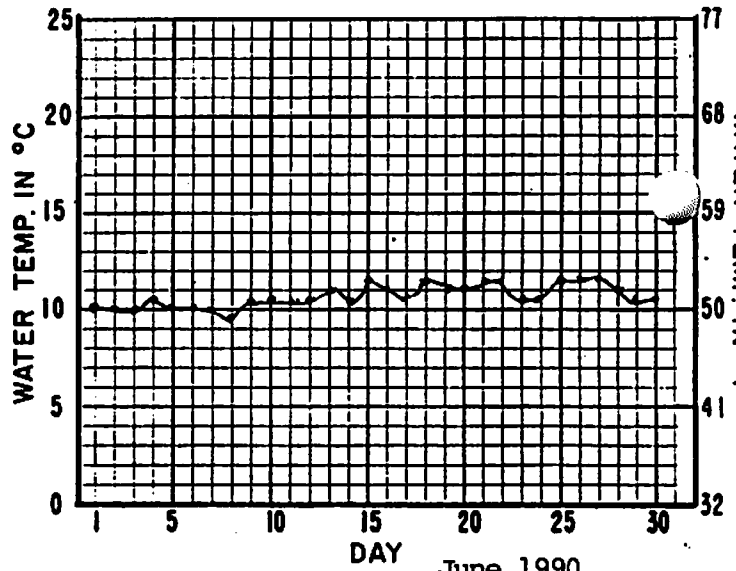
February 1990



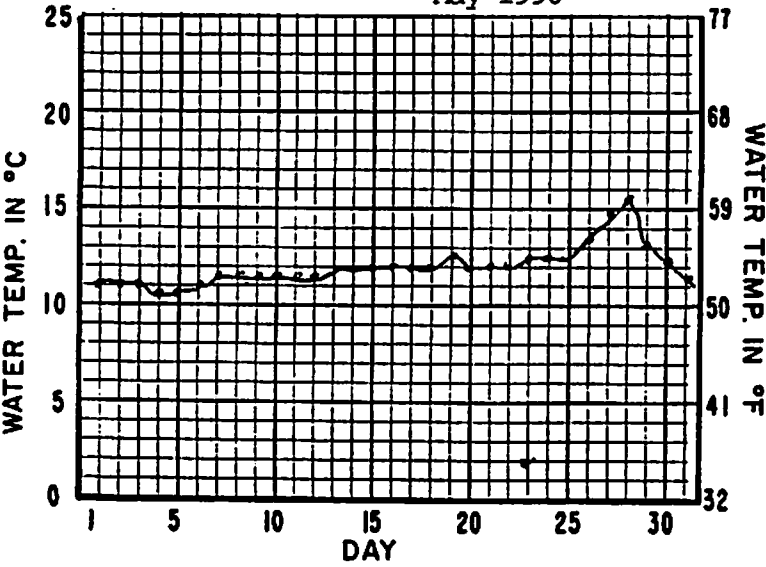
March 1990



April 1990



May 1990



June 1990

